


THE SAFETY FACTOR

WHAT YOU SHOULD KNOW
IF YOU OPERATE
A BUSINESS AIRCRAFT



Today's business pilots are among the most skilled and versatile members of the aviation community. They are, of course, expected to operate complex, sophisticated aircraft without error. And they must routinely be prepared to go any place at any time—often on a moment's notice. That kind of flexibility is a major reason for the dramatic growth of business flying.

□ Management, while thriving on this versatility, must assure that pilots have the proper tools to work with. Most importantly, that means providing a professional training program to maintain proficiency at peak performance. □ Consider the fact that over 8000 professional business pilots now regularly attend the refresher training programs of FlightSafety International, Inc. These programs are available for most types of high-performance business aircraft and depend on dedicated, full-time professional instructors using state-of-the-art training aids and methods. But the focal point of a FlightSafety program is the flight simulator—and, as the following pages will demonstrate, these are multi-million dollar, computer-directed machines with an incredible capacity to train pilots. And they are uniquely energy efficient—training by simulator does not burn a drop of aviation fuel. □ It is our firm belief that there is *no safe alternative* to a professionally-run, simulator-based program of periodic refresher training.

A longtime FlightSafety client, Charles E. Morris (left), is Manager, Aircraft Operations for the Mobil Corporation. Shown here with Jack Gauger (center) Assistant Manager for flight safety and standardization and David S. O'Keefe, Assistant Manager, he runs a worldwide fleet for Mobil that includes almost 50 fixed and rotary-wing aircraft. "We believe training reinforces professional discipline," Morris states, "and FlightSafety's new visual flight simulators reproduce every conceivable system operation and emergency situation."



THE FLIGHT SIMULATOR

You're at the controls of a FlightSafety simulator—but it looks and feels as if you were in your own aircraft. With the touch of a few buttons, your training instructor creates a remarkable environment: for example, you're five miles out on final approach. Visibility is low. As you pass through patches of cloud suddenly all power is lost in the right engine. You *must* take immediate action. Will you make the right decisions? That question can only be answered—and that situation can only be practiced and perfected—in a modern flight simulator. An attempt to simulate this emergency in an actual aircraft would be a foolish risk to life and equipment. □ Today, the flight simulator as illustrated here is a completely safe method of practicing all normal and emergency procedures until they become second nature. Faithfully duplicating the cockpit of its particular type aircraft, the simulator flies exactly like the airplane. It moves and responds to all controls. It creates G-forces and produces the sounds of flight. It can be programmed for every conceivable kind of weather. And perhaps most incredibly, the simulator's digital computer generates a live 3-dimensional image of runways, approach lights, airport buildings, local towers and other landmarks. Almost any airport in the world can be accurately displayed visually (and that can include your home airport). □ In 1951, FlightSafety International was founded on two basic ideas: 1) a pilot must *never* stop learning and; 2) the controlled environment of a simulator is the *best place* to conduct that training. The ideas proved sound. FlightSafety has become the world's leading aviation training organization with an investment of over \$55 million in equipment and facilities devoted to business aircraft training. With a fleet of simulators representing 15 different manufacturers of business and commercial aircraft, FlightSafety actually operates *more simulators* than American Airlines, Pan Am and TWA combined. And when it comes to flight training, the more experience a company has, the better your training will be.



An instructor can present the crew with virtually any system failure using the fault panel shown above.



Digital Visual System

1 By utilizing high speed digital electronics, this unit accurately reproduces a three-dimensional visual environment. An airport can be selected from hundreds that are available—and then recreated under any weather conditions. Runway textures, landing lights, surrounding buildings and highways appear to be surprisingly real.

Cockpit Realism

2 The interior of a FlightSafety simulator faithfully reproduces the actual cockpit of the aircraft simulated. From the complex instrument panels, electronic guidance equipment, right down to the location of the ashtrays.

Instructor Station

3 From a position immediately behind the crew, the instructor can select from over 100 emergency situations and then create them at any stage of the "flight" from engine start-up to the landing roll-out and subsequent shut down procedures.

Crew Coordination

4 In the case of 2-pilot aircraft, it is imperative that crews work together as a single unit toward the objective of a safe flight. All simulator problems are presented so as to require each crew member to respond with the appropriate actions in a coordinated manner.

Motion Base

5 The motion base creates the sensations of flight by hydraulically moving the entire simulator through various axes. This stimulates the correct physiologic responses of acceleration and movement (i.e. the G forces) for each maneuver.

WHY IS TRAINING NECESSARY?

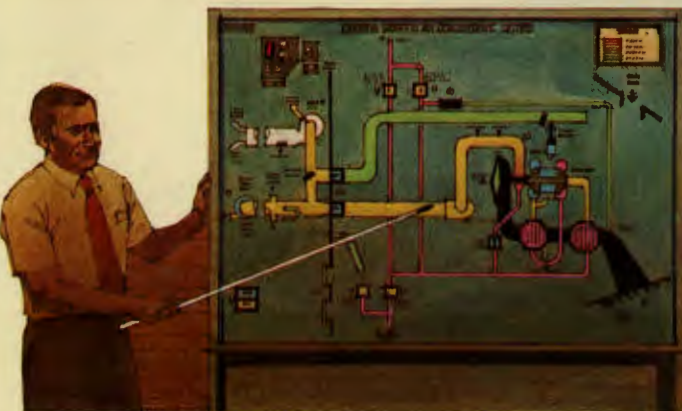
Today's aircraft are well-designed and safe—provided they are operated properly. According to a recent National Transportation Safety Board review of aircraft accident data, the pilot was either the cause or a factor in 84.28% of all general aviation accidents with assigned causes. That is why every truly professional aviation department recognizes that training is the *only* means of maintaining safe operations.

WHY RECURRENT TRAINING?

Recurrent or "refresher" training is needed even if a pilot flies every day because, without training, bad habits can develop and be reinforced through repetition. A proper program of recurrent training is not a perfunctory check—it is instead a *periodic, thorough review* of all normal and emergency operating procedures for the aircraft. FlightSafety recommends that recurrent training be taken twice each year. (In fact, the FAA *requires* that all commercial airline pilots train to proficiency twice a year.)

WHAT ARE THE ELEMENTS OF A PROFESSIONAL TRAINING PROGRAM?

It takes a total organization devoted solely to training. This includes 1) full-time professional instructors; 2) a state-of-the-art learning environment equipped with the latest audio/visual training aids; 3) multi-million dollar flight simulators; 4) the experience gained through a direct association (i.e. as the authorized training organization) with most manufacturers of business aircraft. Housing these elements in a special learning center assures lack of interruption and the cross-fertilization of ideas.



WHY USE A SIMULATOR? CAN'T PILOTS PRACTICE IN THE AIRCRAFT?

Statistics show that a high percentage of aircraft accidents occur during training flights. And most emergencies, for example the loss of hydraulics, simply



can't be simulated in the aircraft. In fact, there are over 100 system-failure emergencies that can *only* be practiced in a simulator.

WHAT HAPPENS DURING AN "EMERGENCY" IN THE SIMULATOR?

From a station behind the training pilots (shown above), the instructor can instantly program the simulator to produce almost any emergency that could happen in the air—or on the ground—and give it during any weather conditions. He can selectively "fail" any system and closely monitor crew performance. A situation such as a single engine approach can be carried through touchdown and roll out. If crew performance isn't up to par, the maneuver is repeated until proficiency is attained.

DOES YOUR AIRCRAFT EVER NEED TO BE USED FOR PERIODIC REFRESHER TRAINING?

No. Once initially certificated, pilots *never again* need to use the aircraft for training or FAA proficiency checks. Our fully-approved simulators can be used in lieu of aircraft for all 12 and 24-month checks.



HOW MUCH FUEL CAN BE SAVED BY TRAINING IN A SIMULATOR?

Lots. Because while the simulator uses no fuel, a business jet in the typically "dirty" training configurations (flaps out, gear down, etc.) can burn several hundred gallons of fuel an hour. It's estimated that FlightSafety's simulators save customers at least 30 million gallons of fuel each year.

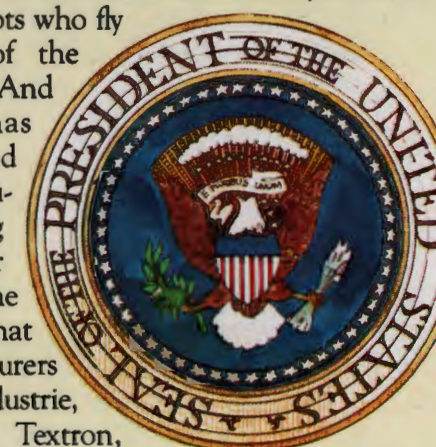


WHAT OTHER COSTS DOES SIMULATOR TRAINING ELIMINATE?

There are, of course, none of the maintenance costs associated with each hour of actual flight time. In addition, there is no risk of airframe damage or of liability exposure due to the practicing of instructor-created "emergencies" in the cockpit of your aircraft. (Due to this, some insurance companies often quote preferred rates if you are conducting your training in simulators.)

WHY SELECT FLIGHTSAFETY?

With so much at stake, you should look for the most complete and professional program available. FlightSafety alone has the people, the equipment, and the experience gained through millions of simulator hours. FlightSafety's clients include over 1600 major corporations, all of the military services, and even the pilots who fly the President of the United States. And FlightSafety has been designated as the official authorized training organization for almost all of the business planes that aircraft manufacturers sell. Airbus Industrie, Bell Helicopter Textron, British Aerospace, Canadair, Cessna, Dassault, Gates Learjet, Gulfstream American, Lockheed, Mitsubishi, McDonnell Douglas, Piper, Rockwell, Swearingen and Westwind have appointed FlightSafety International.



Well, if I had to convince my boss to spend the money for regular recurrent refresher training, I'd simply go to him and lay it right out, "It's a matter of safety." If we do regular training, we'll enjoy a greater margin of safety. That's it, plain and simple.

Paul F. Stevens
Chief Pilot
W. R. Grace & Company

I've never seen a pilot so proficient that it wasn't necessary to go back and do some recurrent training.

Jim Hopkins
Manager Aviation Services
American Can Company

You simply can't get too much training, and this goes for the whole flight crew. Up there you can't afford to make even one mistake.

Jack Gallagher
Flight Operations Director
Gannett Company, Inc.

Whenever a person comes back from a concentrated period of training he feels much more confident, and much more competent. From my point of view, as a manager, it enhances the safety of our operations.

Otto C. Pobanz
Manager Flight Operations
Federated Department Stores, Inc.

You can't run a meaningful training program today without visual simulators.

Bill Shaughnessy
Director of Operations, Air Transport Service
American Cyanamid Company

All of our pilots look forward to simulator training because we're able to do things in the simulator that we could never do in the aircraft.

William L. Mack
Chief Pilot
National Distillers and Chemical Corporation

Our course was conducted by FlightSafety's most competent, knowledgeable and experienced instructors, satisfying the high level of excellence and professionalism we desire.

L.B. Gerlach
Manager/Chief Pilot
Aviation Transport Division
Texaco Inc.

FlightSafety's simulators and very professional instructor staff provide the best training available. You can't beat the combination of the simulator and third party review.

Neil Fulton
Manager Aviation Department
Olin Corporation

Every pilot should know instinctively what to do when faced with an unusual situation—and that comes only from continual practice and knowing the correct procedures.

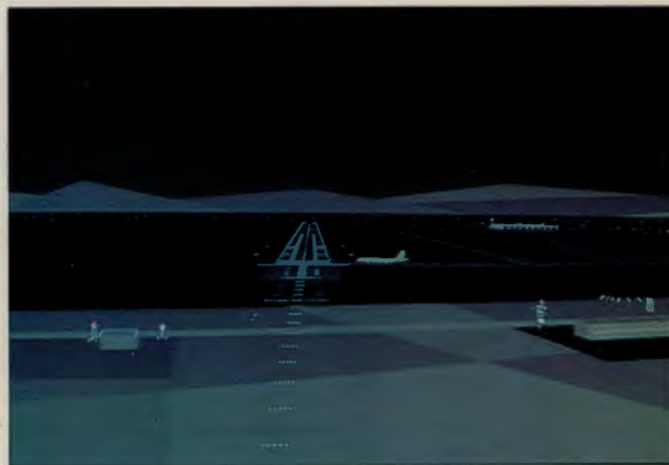
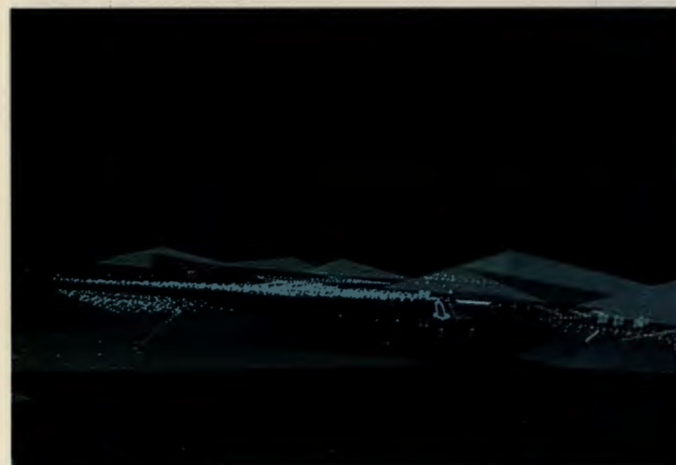
George F. Hildebrandt
Chief Pilot
Boatmen's National Bank

A simulator is one way to cut the cost of training. To train in an airplane can cost you thousands of dollars per hour. Simulator training, on the other hand, is only a fraction of that—plus you're not subjecting your airplane to all those maneuvers that might affect maintenance.

J.R. Martinez
Aviation Manager
Cameron Iron Works, Inc.

I consider FlightSafety's course to be a major factor in maintaining our outstanding flying safety record.

Paul E. Gardner
Colonel USAF
Commander
Headquarters 89th Military Airlift Wing



Shown here and on opposite page are actual photos of three computer-generated visual images as the pilot in a simulator sees them. A realistic, 3-dimensional effect is electronically created by many thousands of light points.

FlightSafety's simulators will save us 135,000 gallons of fuel annually.

Bill Watt
Executive Vice President
Executive Air Fleet, Inc.

At a FlightSafety training session, you meet other pilots who fly your same type aircraft. By exchanging experiences, you pick up things that you've never thought of before and problems that you've never experienced before.

C. H. Von Hollen
Manager Aviation Department
Union Camp Corporation

We operate many different types of aircraft. FlightSafety handles all our training requirements very well.

Bill Correll
Manager Aviation Department
International Paper Company

We in the Air Force are extremely proud of the unprecedented flying safety record of the Special Air Mission Fleet (SAM) that provides a very vital service to our nation's highest government leaders. The effort of FlightSafety International has contributed immeasurably to the success.

Roger G. Waddill
Colonel, USAF
Chief, Special Air Missions Office
Vice Chief of Staff

Your King Air Learning Center is outstanding in every respect! I've been flying for the Army for over 25 years and I can say without hesitation it's the finest flight instruction I have received anywhere.

J.R. Curry
Major General, U.S.A.
Commanding Headquarters,
U.S. Army Test and Evaluation Command



Today an aircraft accident is so costly that we can only insure those companies which maintain the highest standard of safety. Crew training, both initial or transitional as well as recurrent, is the first ingredient we check in evaluating the insurability of a risk. Only those that require their pilots to regularly participate in a formal, comprehensive, and effective crew training program can be insured by the INA.

The use of simulators is becoming an increasingly important ingredient in a complete and well-rounded training program. The risk of a training accident is reduced while more comprehensive cockpit training can be accomplished. We strongly endorse formal crew training programs that include use of simulators.

Raymond L. Richards
Vice President
Insurance Company of North America

Our company places the highest emphasis and importance on safety of operation. We believe that formal professional training incorporating the use of simulators is all important. Experience has proven that simulators safely enable pilots to practice all normal and emergency procedures under controlled conditions. They simply eliminate hazards.

We strongly recommend the use of professional training in both the initial and recurrent training of crews.

Robert M. Lowd
President
Associated Aviation Underwriters



We have always stressed the critical importance of the safe operation of corporate aircraft crewed by highly trained professionals. When considering a risk, we are vitally interested in the type of crew training program being utilized. In this regard, the use of simulators as an integral part of initial and recurrent training is most desirable. They enable crew members to practice and perfect emergency as well as normal operating procedures under controlled conditions. Weaknesses and mistakes can be identified easily and corrected on the spot in an environment that is free from the usual flight training hazards.

A formal, professional, recurrent training program is an indication of a high quality flight operation. A risk with a demonstrable interest in providing the best crew training available is always given favorable consideration in terms of insurability.

George W. Meehan
Senior Vice President
U.S. Aviation Underwriters, Inc.

**FlightSafety clients have
the best safety record
in the industry—and
safety is what it's all about.**

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